

AMENDMENTS TO THE CLAIMS

Applicants have canceled Claim 1-6 and 21-34 and amended claims 7 and 35 as follows. The listing of the claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (canceled)

2. (canceled)

3. (canceled)

4. (canceled)

5. (canceled)

6. (canceled)

7. (currently amended): A method for vaporizing a liquid or solid sample for analysis, comprising:

a) providing a micropyrolyzer, comprising:

a substrate having a suspended membrane formed thereon, the membrane having a surface for accepting the sample, wherein the substrate is selected from the group consisting of semiconductors and dielectrics; and

a resistive heating element disposed on the membrane;

a) depositing the sample on the sample-accepting surface of the membrane;

b) heating the sample on the membrane with the resistive heating element to form a vapor; and

c) removing the vapor from the micropyrolyzer for chemical analysis of the vapor.

8. (previously presented): The method of claim 7, further comprising the step of introducing a reagent chemical to the sample prior to step c).

9. (original): The method of claim 7, wherein the sample size is less than 3 microliters.

10. (original): The method of claim 7, wherein the sample heating rate is greater than 20°C per millisecond.

11. (original): The method of claim 7, wherein the sample heating rate is greater than 40°C per millisecond.
12. (original): The method of claim 7, wherein the sample heating rate is greater than 60°C per millisecond.
13. (original): The method of claim 7, wherein the sample can be heated to a temperature of up to 1000°C.
14. (original): The method of claim 7, wherein the heating requires less than 1 Watt of power.
15. (original): The method of claim 7, wherein the sample comprises a fatty ester, triglyceride, wax, oil, polyunsaturated fat, fatty alcohol, phenol, dipicolinic acid, carboxylic acid-containing molecule, alkaloidal narcotic, drug, drug metabolite, or herbicide.
16. (original): The method of claim 7, wherein the sample comprises a fatty acid or a mixture containing fatty acids.
17. (original): The method of claim 8, wherein the reagent chemical comprises a methylation reagent.
18. (original): The method of claim 17, wherein the reagent chemical comprises tetramethylammonium acetate, trimethylphenylammonium hydroxide, phenyl-trimethylammonium fluoride, N,N-Dimethylformamide dimethyl acetal, or (m-trifluoromethylphenyl) trimethylammonium hydroxide.
19. (original): The method of claim 17, wherein the reagent chemical comprises tetramethylammonium hydroxide.
20. (original): The method of claim 7, wherein the vapor is formed by pyrolysis, heated chemistry, or thermal desorption of the sample.
21. (canceled)
22. (canceled)
23. (canceled)
24. (canceled)

25. (canceled)

26. (canceled)

27. (canceled)

28. (canceled)

29. (canceled)

30. (canceled)

31. (canceled)

32. (canceled)

33. (canceled)

34. (canceled)

35. (currently amended): The method of claim 734, wherein the substrate comprises silicon.

36. (previously presented): The method of claim 7, wherein the membrane comprises a material selected from the group consisting of silicon nitride, polysilicon, silicon oxynitride and silicon carbide.

37. (previously presented): The method of claim 7, wherein the resistive heating element comprises a circuitous metal trace.

38. (previously presented): The method of claim 37, wherein the metal comprises a metal selected from the group consisting of platinum, molybdenum, titanium, chromium, palladium, gold, tungsten, and combinations thereof.